

Metal container with sealable shaped rim

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Abstract of GB2244254

A metal container 1; 16, formed for example as a can, comprising a body 2 and a shaped rim 4, which extends inwardly transversely to the longitudinal axis of the body 2 and which is tightly sealed by a tear-off foil 5, is characterised in that the rim 4 is encompassed by a body wall fold 7 extending out beyond the rim 4 lengthwise of the container. By this means the foil 5 is protected and the metal containers 1; 16 can be stacked. The double fold 3 formed at the base of the metal container 16 can rest within the body fold (7) of the metal container (1) and a secure stacking of the metal containers (1; 16) is ensured. In modifications, the base is integral with the body (Figs. 6, 7) and raw edge of the rim may be folded in (Fig 2) or disposed on the outside.

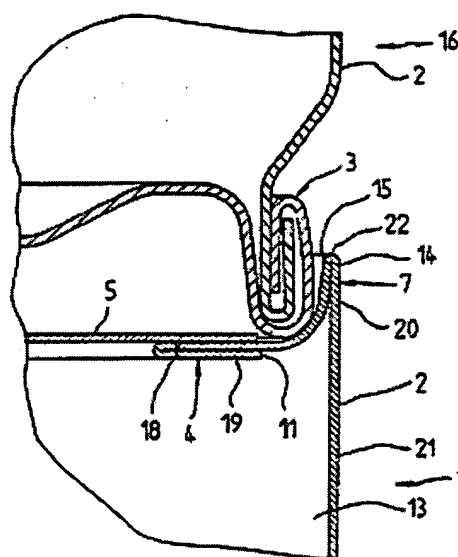


Fig. 5

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(54) Metal container with sealable shaped rim

(57) A metal container 1; 16, formed for example as a can, comprising a body 2 and a shaped rim 4, which extends inwardly transversely to the longitudinal axis of the body 2 and which is tightly sealed by a tear-off foil 5, is characterised in that the rim 4 is encompassed by a body wall fold 7 extending out beyond the rim 4 lengthwise of the container. By this means the foil 5 is protected and the metal containers 1; 16 can be stacked. The double fold 3 formed at the base of the metal container 16 can rest within the body fold (7) of the metal container (1) and a secure stacking of the metal containers (1; 16) is ensured. In modifications, the base is integral with the body (Figs. 6, 7) and raw edge of the rim may be folded in (Fig 2) or disposed on the outside.

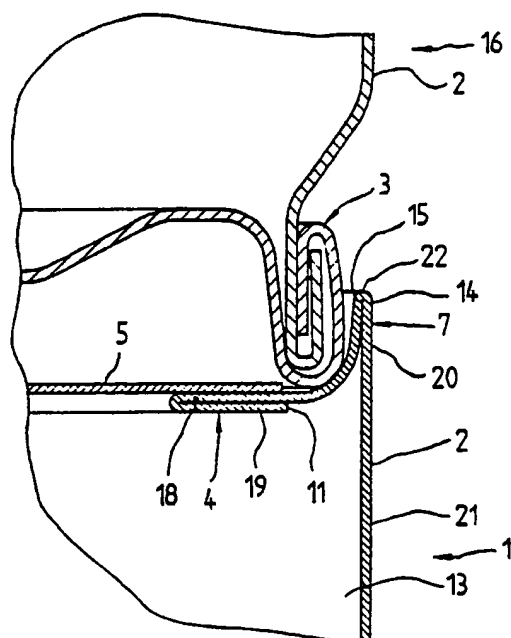


Fig. 5

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Fig. 1

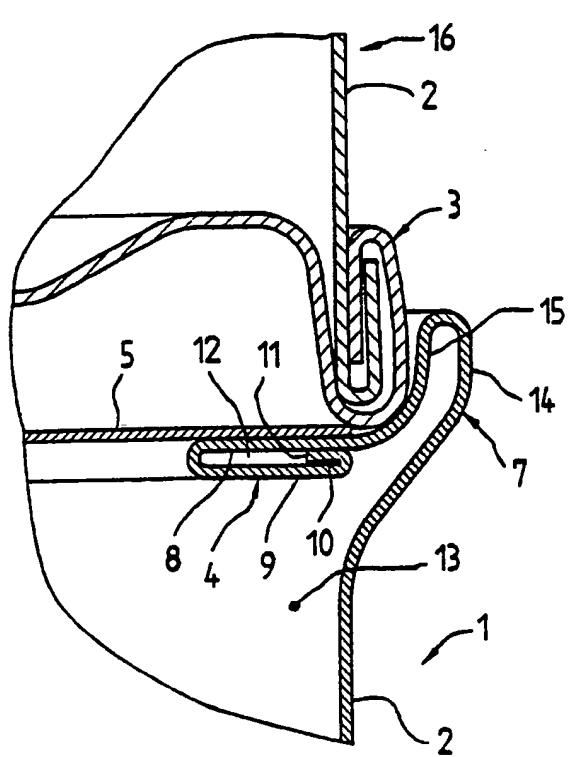
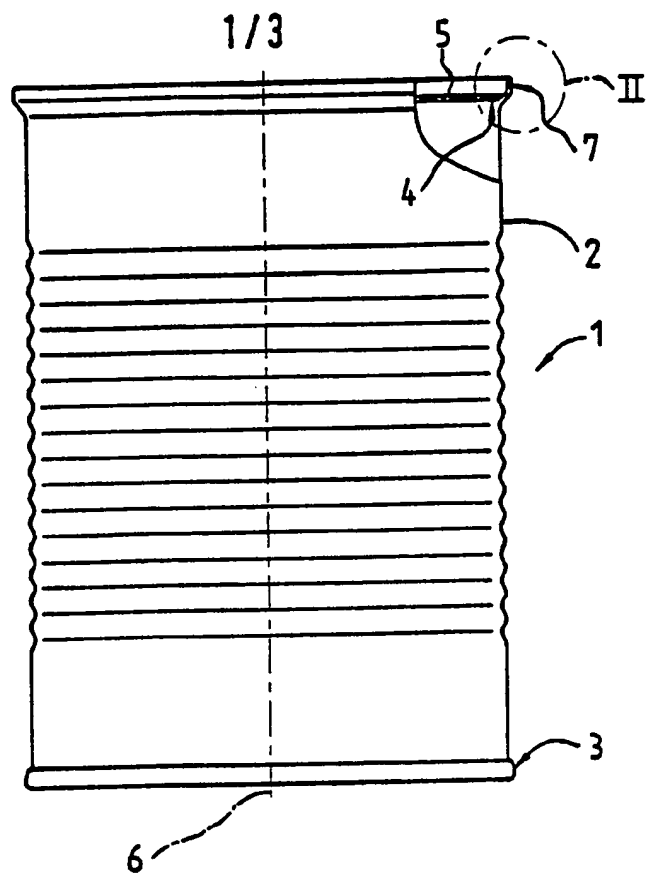


Fig. 2

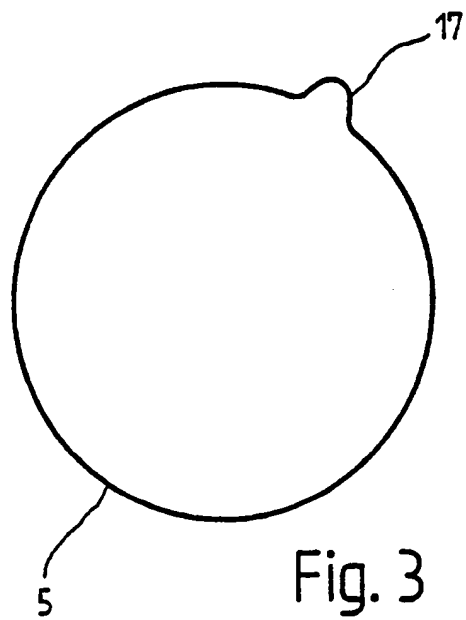


Fig. 3

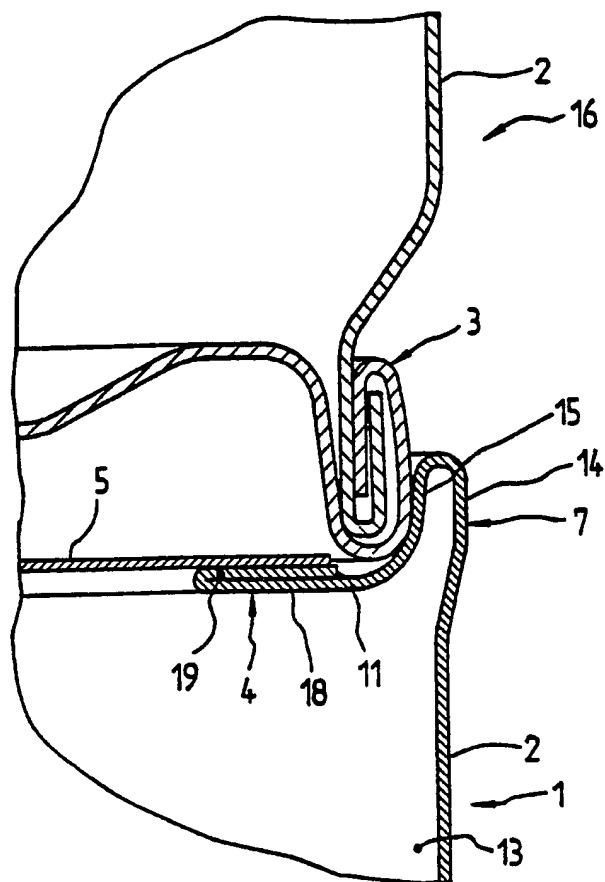


Fig. 4

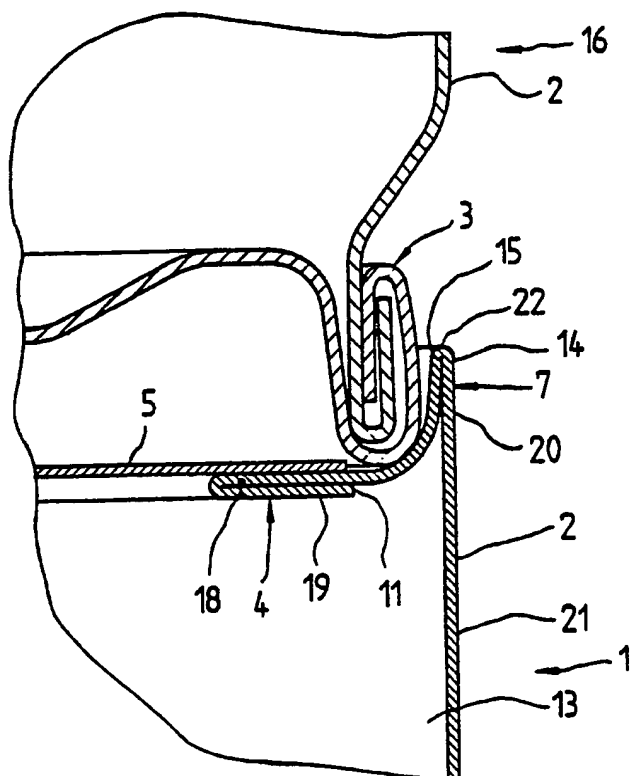


Fig. 5

Fig. 6

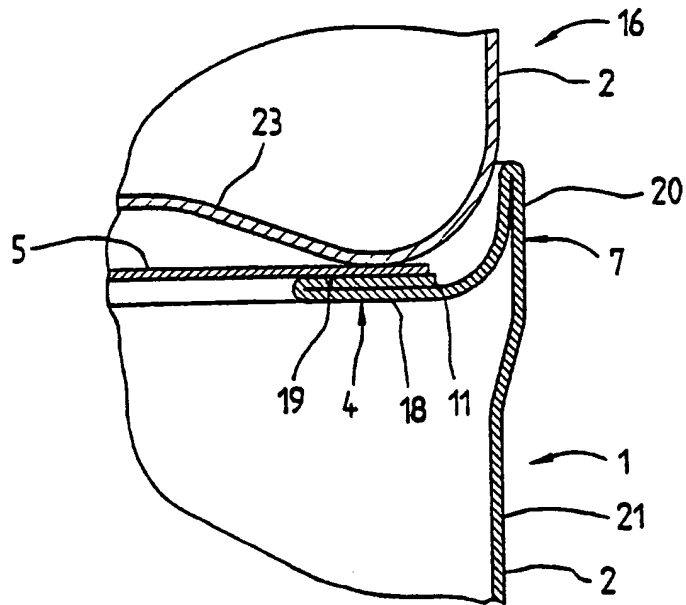
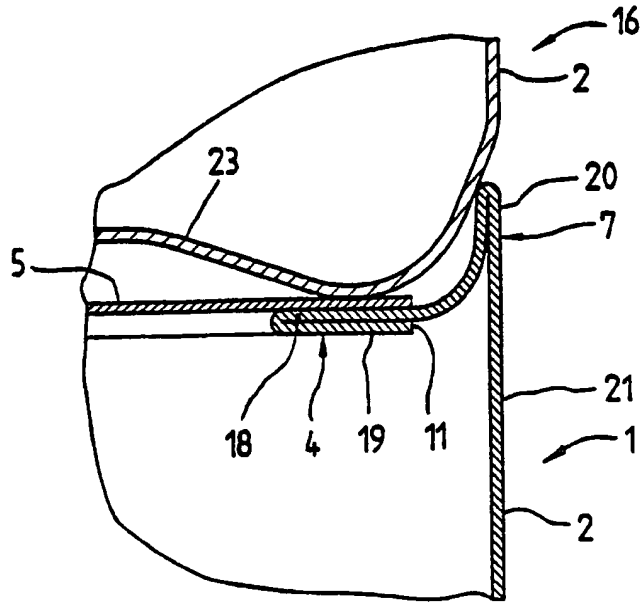


Fig. 7

METAL CONTAINER WITH SEALABLE SHAPED RIM.

The invention relates to a metal container comprising a body and a shaped rim which extends transversely to the longitudinal axis of the body and which is tightly sealed by a tear-off foil.

5 In one known metal container of this type
(DE-G 82 11 578.8 U1) the shaped rim 1 is deformed
outwardly from the inside and has an external diameter
2 which is no greater than that of the body 3, so that
a lid can be pressed on to the body. The shaped rim 1
10 includes in its upper region 4, transversely to the
longitudinal axis 5 of the metal container, an annular
flat surface which is created by flattening and which
serves as a sealing surface for a closure or a foil.
This known metal container is designed in particular
15 for creams, fats and the like. Because the container
is not stackable there is no means for preventing the
container from slipping sideways.

It is an object of the present invention to
provide a metal container of the type first referred to
20 above which is stackable.

This is achieved in accordance with the
present invention in a metal container of the type
first referred to above by the shaped rim being
encompassed by a body fold which extends out beyond the
25 shaped rim lengthwise of the container.

By means of this special arrangement of the
shaped rim, on the one hand the foil which is sealed to
the shaped rim is protected and on the other hand the
metal containers are made stackable. An upper metal
30 container can thus be positioned with its lower end in
the upper region of the lower metal container, so that
the body fold encompasses the lower edge and prevents
any lateral slip. In comparison to the conventional
metal containers with tear-off covers, there is a
35 considerable cost saving with the present invention by

the use of the foil which is sealed as a closure to the shaped rim. A further advantage is that the foil can be torn away very easily from the shaped rim.

5 Preferably, the body fold comprises sheet-metal webs which are arranged spaced from each other. This arrangement is recommended when using sheet metal and/or transitions in these sheet-metal webs which are sensitive to sharp folds and in order to achieve special geometries in the region of the body fold.

10 In an alternative embodiment, the body fold comprises sheet-metal webs in contact with each other at least in the region of the apex of the body fold. This results in a favourable, small radial dimension for the body fold.

15 The body fold may extend radially outwards beyond the rest of the body, and the body fold may encompass at the lower end an upper metal container which is stacked thereon. This arrangement facilitates the stacking of the containers.

20 In one embodiment the external surface of the body fold is aligned at least approximately with the external surface of the body. This facilitates the manufacture of the metal container.

25 The shaped rim may be made from sheet metal webs which are arranged above one another. The multiple web construction of this type gives a particularly rigid shaped rim with high resistance to deformation.

30 In one embodiment, a free edge of the shaped rim is arranged to be outside the internal chamber of the metal container. This is advantageous if contact of the free edge of the shaped rim with the contents of the metal container could lead to corrosion.

35 The free edge of the shaped rim may face outwards, with an outer edge of the foil being arranged

in the region of the free edge of the shaped rim. This gives good rigidity to the shaped rim and a favourably large sealing surface for the foil. The radial extent of the shaped rim can be kept to a minimum.

5 In an alternative embodiment, a free edge of the shaped rim is arranged to be within the internal chamber of the metal container. The free edge can face outwards or inwards. Such a design can be used with advantage if corrosion of the free edge of the shaped rim due to the contents of the metal container is not a problem.

10 In order that the invention may be fully understood, a number of embodiments in accordance with the invention will now be described by way of example and with reference to the accompanying drawings, in which:

Fig. 1 is a side view, partly broken away, of a metal container;

20 Fig. 2 is a view on an enlarged scale of the detail II of Fig. 1, showing a part of a metal container stacked on the lower container;

Fig. 3 is the plan view of a sealable foil for use with the container shown in Figs. 1 and 2;

25 Fig. 4 is a longitudinal sectional view, corresponding to that of Fig. 2, through a second embodiment of container;

Fig. 5 is a sectional view, corresponding to that of Fig. 2, through another embodiment of container;

30 Fig. 6 is a sectional view, corresponding to Fig. 2, through yet another embodiment of container; and,

Fig. 7 is a sectional view, corresponding to Fig. 2, through another embodiment of container.

35 Fig. 1 shows a metal container 1 formed as a

can and having a body 2 to which a bottom is secured by a double fold 3. At the upper end of the body 2 there is a shaped rim 4 which is tightly sealed by a tear-off foil 5. The shaped rim 4 is encircled by a body fold 7
5 which extends out beyond the shaped rim 4 in the direction of the longitudinal axis 6 of the metal container 1, i.e. lengthwise of the container.

The body 2 can be manufactured in one piece or in two pieces, in a manner known per se, from thin
10 metal plate or from super-thin metal plate. The sealable foil is of adequate thickness and is preferably of metal. The foil 5 can be sealed in place by thermal contact welding or by the use of ultrasound. Depending upon the particular application, the material
15 and/or the thickness of the foil 5 is such that the foil itself and the sealing zone of the foil can withstand all loads which would occur in use. Such sealed foil closures are effective for sterilisation purposes, so that they are usable without additional
20 means in the large range of applications of use of cans.

As shown in Fig. 2, the shaped rim 4 extends transversely to the longitudinal axis 6 (Fig. 1) of the metal container 1. The shaped rim 4 is in this
25 embodiment formed from two sheet-metal webs 8 and 9 and, towards the outside, from a third sheet-metal web 10. This leaves a free edge 11 of the shaped rim 4 facing inwardly, with the result that an annular hollow chamber 12 is created inside the shaped rim 4.

30 In this embodiment, the free edge 11 of the shaped rim 4 is positioned within an internal chamber 13 of the metal container 1, but is nevertheless protected from direct contact with the contents (not shown) of the metal container 1.

35 The body fold 7 is constituted by sheet-metal

webs 14 and 15 which are spaced from each other. The body fold 7 extends radially outwards beyond the rest of the body 2 to such an extent that the double fold 3 of an upper, similar type metal container 16 can be stacked on the lower metal container 1. The body fold 7 encompasses the lower portion of the double fold 3 in such a manner that the upper metal container 16 can no longer be displaced laterally relative to the lower metal container 1. The metal containers 1 and 16 are thus stackable.

Fig. 3 shows a plan view of the foil 5, which is substantially circular in shape and has a tear-off tab 17 at only one position around the periphery.

In all the embodiments described herein, the respective same components are indicated by the respective same reference numerals.

As shown in Fig. 4, the shaped rim 4 consists of two sheet-metal webs 18 and 19 which lie in contact with each other. The free edge 11 of the shaped rim 4 here faces outwards and is arranged outside the inner chamber 13 of the can.

In Fig. 4, the body 2 of the metal container 16 is necked in. In this way the double fold 3 is positioned further inwards than is the case in Figs. 1 and 2, so that the body fold 7 does not need to project so far out beyond the body 2 as is the case in Figs. 1 and 2.

In the embodiment shown in Fig. 5 the lower portion of the body of the metal container 16 is necked in even further than in Fig. 4, so that an external surface 20 of the body fold 7 is aligned with an external surface 21 of the body 2. Moreover, the sheet-metal webs 14, 15 of the body fold 7 lie in contact with each other in the region of the apex 22 of the body fold 7.

In Fig. 5 the sheet-metal webs 18, 19 of the shaped rim 4 are again in contact with each other. However, in this case, the free edge 11 of the shaped rim 4 is located within the inner chamber 13 of the metal container 1.

In the embodiment according to Fig. 6, the construction of the shaped rim 4 and the construction of the body fold 7 correspond to that of Fig. 5. In the case of these metal containers 1, 16 one is talking however about so-called two-part containers, in which the body 2 would be made integrally with the bottom 23 by a deep drawing process. At the transition from the body 2 to the bottom 23 the body 2 is somewhat necked in, so that even in this case the external surface 20 of the body fold 7 can be aligned with the external surface 21 of the body 2.

Fig. 7 again shows such two-part metal containers 1, 16, but in this case the body is not necked in in the region of the bottom. Thus, it is necessary that the external surface 20 of the body fold 7 projects outwardly somewhat beyond the external surface 21 of the body 2. The shaped rim 4 is again constructed as in Fig. 4.

CLAIMS:

1. A metal container comprising a body and a shaped rim which extends transversely to the longitudinal axis of the body and which is tightly sealed by a tear-off foil, in which the shaped rim is encompassed by a body fold which extends out beyond the shaped rim lengthwise of the container.
2. A metal container according to claim 1, in which the body fold comprises sheet-metal webs arranged spaced from each other.
3. A metal container according to claim 1, in which the body fold comprises sheet-metal webs in contact with each other at least in the region of the apex of the body fold.
4. A metal container according to any preceding claim, in which the body fold extends radially outwards beyond the rest of the body, and in which the body fold can encompass a lower end of an upper metal container which is stacked on the metal container.
5. A metal container according to any of claims 1 to 3, in which an external surface of the body fold is aligned at least approximately with the external surface of the body.
6. A metal container according to any preceding claim, in which the shaped rim comprises sheet-metal webs arranged above one another.
7. A metal container according to claim 6, in which a free edge of the shaped rim is arranged outside an internal chamber of the metal container.
8. A metal container according to claim 7, in which the free edge of the shaped rim faces outwards, and in which an outer edge of the foil is arranged in the region of the free edge of the shaped rim.
9. A metal container according to any one of

claims 1 to 6, in which a free edge of the shaped rim lies within an internal chamber of the metal container.

10. A metal container according to claim 9, in which the free edge of the shaped rim faces outwards.

11. A metal container according to claim 9, in which the free edge of the shaped rim faces inwards, and the shaped rim comprises three sheet-metal webs in the region of its free edge and comprises two sheet-metal webs over the remainder.

12. A metal container substantially as hereinbefore described with reference to Figs. 1 to 3 of the drawings, or Figs. 1 to 3 as modified in any of Figs. 4 to 7 of the drawings.

AMENDMENTS TO THE CLAIMS HAVE BEEN FILED AS FOLLOWS.

1. A metal container comprising a body of sheet-metal and a shaped rim which extends transversely to the longitudinal axis of and is formed integrally with the body and which is tightly sealed by a tear-off foil, in which the shaped rim is encompassed by a body fold which extends out beyond the shaped rim lengthwise of the container.

2. A metal container according to claim 1, in which the body fold comprises sheet-metal webs arranged spaced from each other.

3. A metal container according to claim 1, in which the body fold comprises sheet-metal webs in contact with each other at least in the region of the apex of the body fold.

4. A metal container according to any preceding claim, in which the body fold extends radially outwards beyond the rest of the body, and in which the body fold can encompass a lower end of an upper metal container which is stacked on the metal container.

5. A metal container according to any of claims 1 to 3, in which an external surface of the body fold is aligned at least approximately with the external surface of the body.

6. A metal container according to any preceding claim, in which the shaped rim comprises sheet-metal webs arranged above one another.

7. A metal container according to claim 6, in which a free edge of the shaped rim is arranged outside an internal chamber of the metal container.

8. A metal container according to claim 7, in which the free edge of the shaped rim faces outwards, and in which an outer edge of the foil is arranged in the region of the free edge of the shaped rim.

9. A metal container according to any one of

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